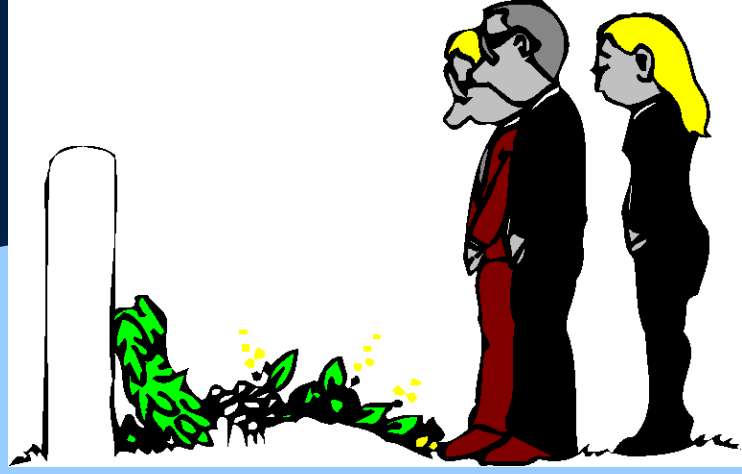
Mortality



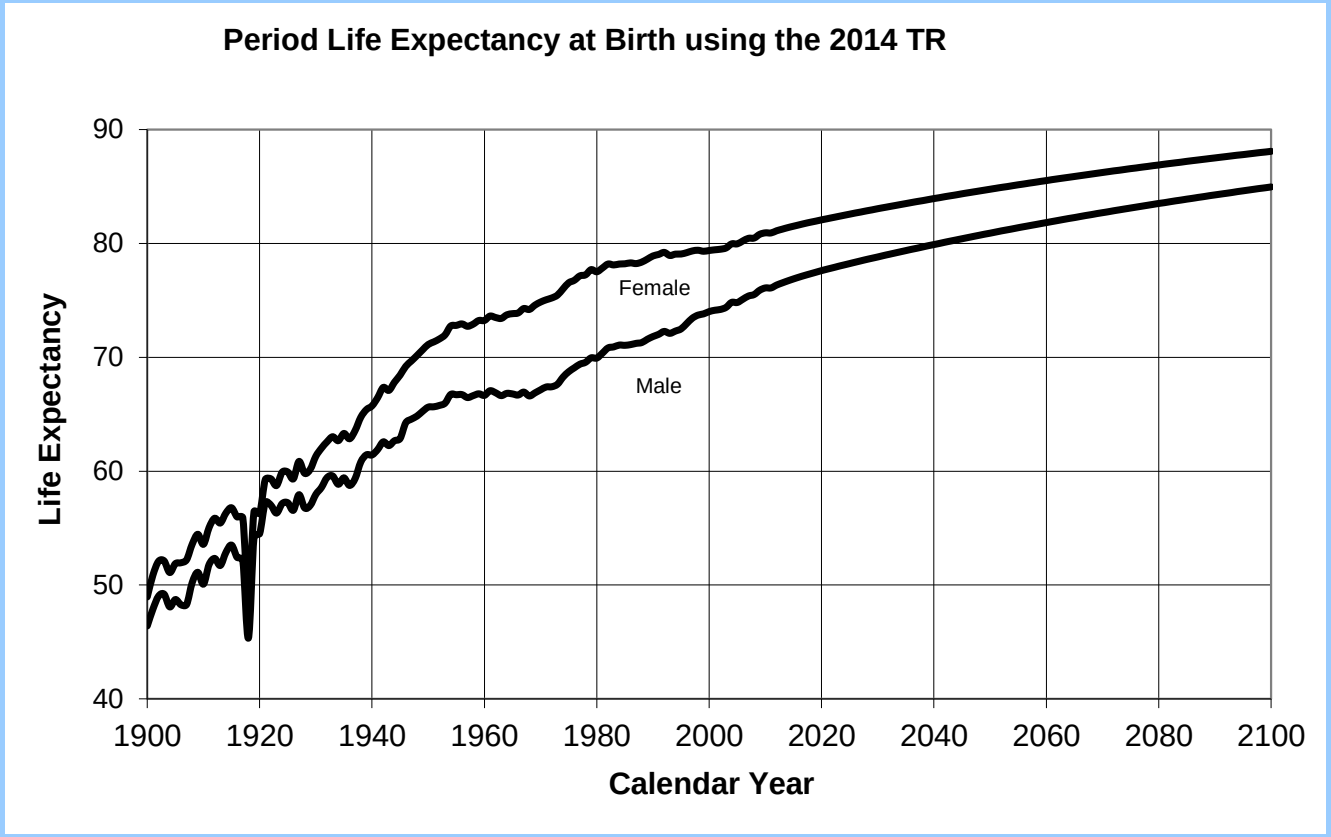
- **For under 65, use historical deaths from the National Center for Health Statistics and historical resident population from the Census Bureau.**
- **For 65 and over, use historical deaths and enrollments of the Medicare population.**

Projection of Mortality

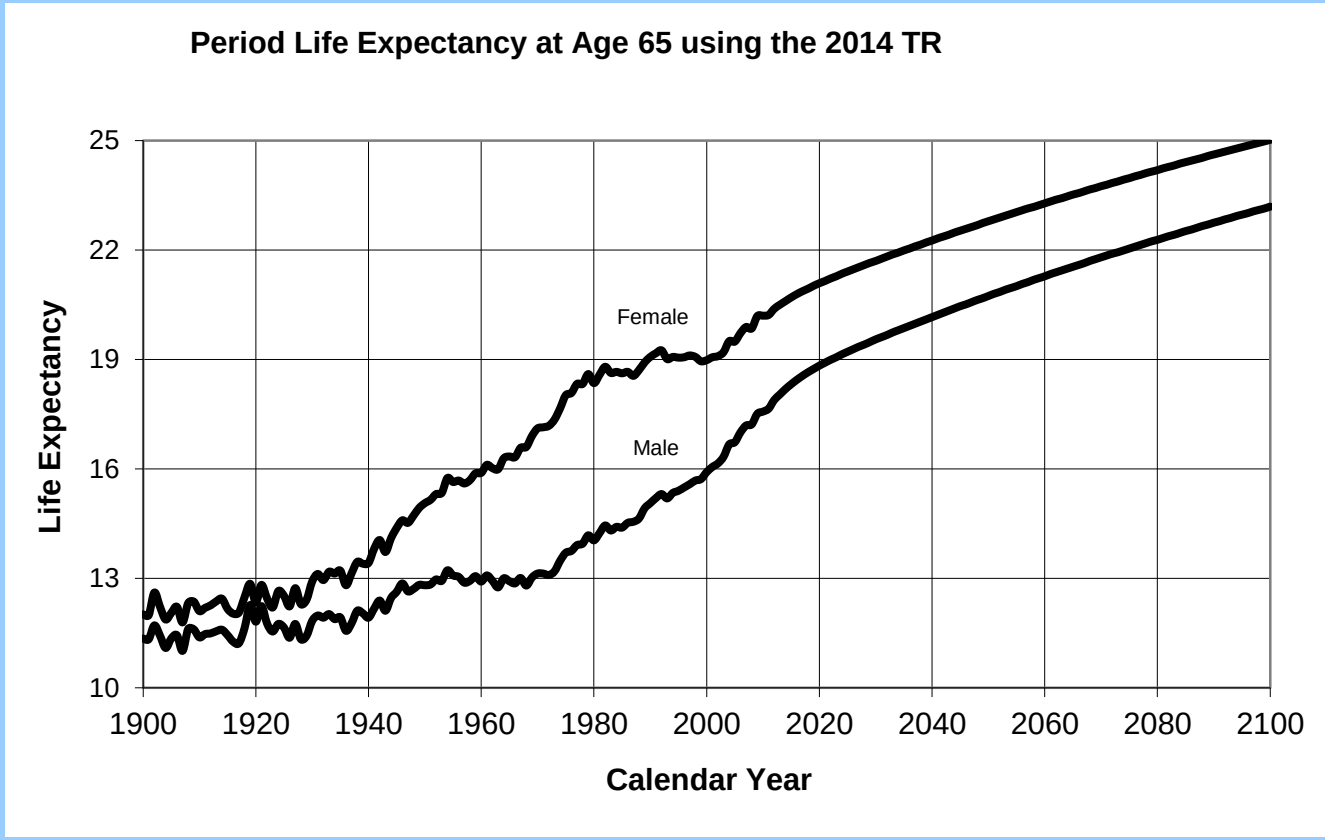
- Mortality is assumed to decline in the future - the rate of decline is in question.
- Three sets of projections (intermediate, low cost, and high cost).
- Stochastic projections also.
- 2014 intermediate projections of the financial status of the U. S. Social Security program assumed significant declines in the future, as shown by:

Calendar year life expectancy at birth
Calendar year life expectancy at age 65

Life Expectancy at Age 0



Life Expectancy at Age 65



Method of projection mortality

- **Central death rates are the key variables used in the projections.**
  - Central death rates for the starting year.
  - Rate of decline in the central death rates.

Central death rates for the starting year

- Annual historical central death rates calculated
  - For 21 age groups, 2 sexes, and 5 causes of death.
- Last year of final data (2010 NCHS and 2011 Medicare) is not used as the starting year.
- Starting year values are determined using the last 12 year of historical central death rates.
  - Computed as the values for the most recent year falling on a weighted least square line.
  - Weights are 0.2, 0.4, 0.6, 0.8, for the earlier four years of the 12 years and are 1.0 for all other year.

Rates of decline in central death rates

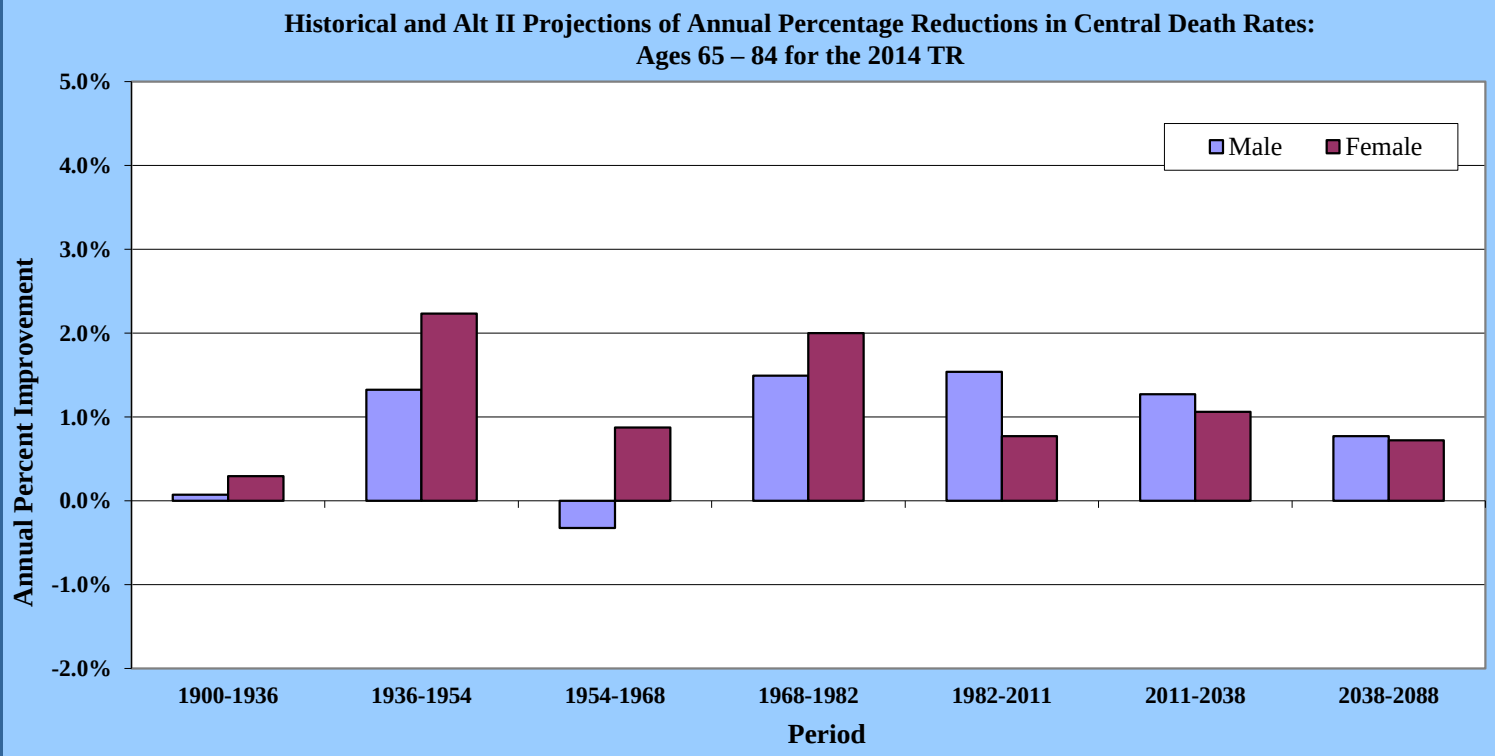
- Historical average annual declines in central death rates are calculated.
  - Over the most recent 10 year period.
  - For 21 age groups, 2 sexes, and 5 causes of death.
- Ultimate average annual declines in central death rates are determined by the Trustees.
  - Reached in the 24th year following the year of the Trustees Report (2038).
  - For 5 age groups and 5 causes of death.
  - Male and female rates are set equal.
- Formula is used to transition from the average annual declines over the historical period to the ultimate rates of decline.

Average Annual Rate of Decline in Age-adjusted Central Death Rates

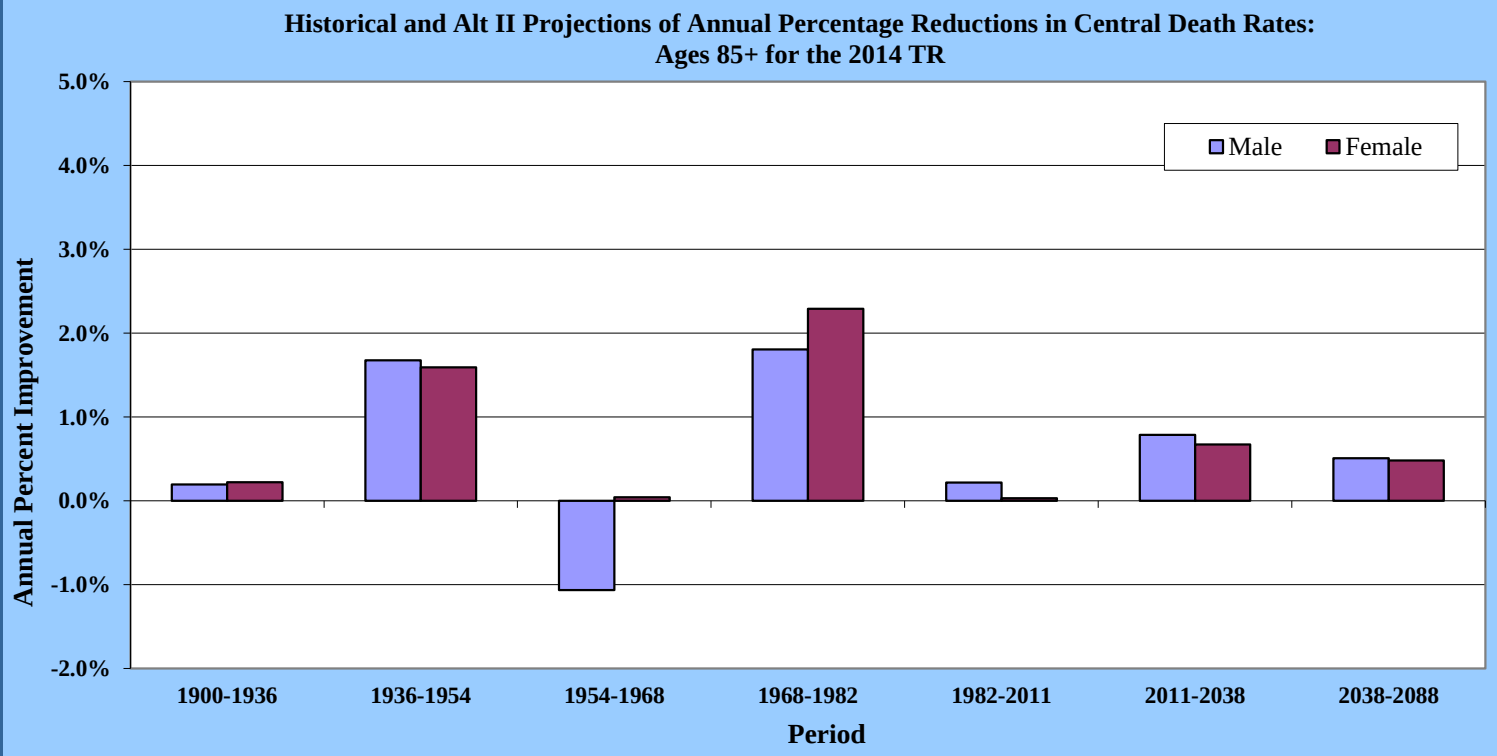
	Males			Females		
	Total	***0-64***	***65+***	***Total***	***0-64***	***65+***
1900 - 1936	0.67	1.32	0.21	0.79	1.53	0.31
1936 - 1954	1.49	2.06	1.17	2.31	3.58	1.74
1954 - 1968	-0.25	0.00	-0.37	0.70	0.75	0.69
1968 - 1982	1.78	2.40	1.50	2.11	2.30	2.04
1982 - 2011	1.25	1.55	1.13	0.60	1.08	0.45
2011 - 2038	1.00	1.10	0.97	0.89	1.12	0.82
2038 - 2088	0.74	1.01	0.65	0.69	1.05	0.60

Based on the intermediate assumptions
of the 2014 Trustees Report
(Using the 2010 Census Resident Population as the standard population for age adjusting)

Historical and Intermediate Projections of Annual Percentage Reduction in Central Death Rates: Ages 65-84



Historical and Intermediate Projections of Annual Percentage Reduction in Central Death Rates: Ages 85+



Other considerations

- Death rates by marital status.
- Differential mortality between the disabled and non-disabled.
- Mortality differential by earnings levels.